Embryonic stem cells provide limitless source of platelets

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A story in yesterday's L.A. Times highlights a point that I think often gets lost in the brouhaha over adult vs. embryonic stem cells. Adult stem cells are great, they really are. That's why we fund a lot of work with blood, brain, fat and other tissue-specific stem cells (you can see a complete list of those awards here). But they don't multiply in the lab. That's why my husband spends two hours donating platelets every few weeks. He donates, hospitals use his platelets, and then he donates more.

Labs can't multiply donated platelets in the lab, nor can they grow up large quantities of the blood-forming stem cells that produce platelets in the body. If they could, those blood-forming stem cells taken from bone marrow or cord blood could become an endless source of platelets and other mature blood cells.

A great thing about embryonic (or iPS) cells is that you can grow them indefinitely. And when you need more cells, you just take some of those so-called pluripotent cells, differentiate them into your cell type of choice, and voila... differentiated cells. As many as you need.

The L.A. Times story discusses recent work by a team of researchers including some from the company ACT published in the journal Cell Research. They were able to generate large of amounts of platelets from embryonic stem cells. According to the L.A. Times, the cells worked, too:

> The researchers reported that the lab-grown platelets were "indistinguishable" from normal blood platelets -- similar in shape and size -- and that they behaved like the real thing, too, helping to form clots in lab dishes and in mice who had sustained injuries to blood vessels. The embryonic stem cell-derived platelets also helped retract clots, the team wrote, another key part of platelets' role in healing wounds.

If this work is effective in humans it could end my husband's two-hour down-time donating platelets every three weeks, which, truth be told, I think he might actually miss. But it could also mean an end to the chronic problem of platelet shortages in hospitals.

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Tags: Blood, ACT